Naval Medical Center Portsmouth (NMCP) COVID-19 Literature Report #85: Friday, 21 January 2022

Prepared By: Tracy C. Shields, MSIS, AHIP (Ms.; she/her) <tracy.c.shields2.civ@mail.mil>
Naval Medical Center Portsmouth; Library Services, Reference Medical Librarian

Purpose: These reports, published every other week on Fridays, are curated collections of current research, evidence reviews, special reports, grey literature, and news regarding the COVID-19 pandemic that may be of interest to medical providers, leadership, and decision makers. Please reach out with questions, suggestions for future topics, or any other feedback. If this report made a difference or impacted patient care, please let me know!

All reports are available online at https://nmcp.libguides.com/covidreport. Access is private; you will need to use the direct link or bookmark the URL.

Disclaimer: I am not a medical professional. This document is current as of the date noted above. While I make every effort to find and summarize available data, I cannot cover everything in the literature on COVID-19. Due to the rapid evolution of the literature, I will not update past reports when new information arises; for retracted papers specific to COVID-19, see the list of retracted papers from Retraction Watch.

TABLE OF CONTENTS

The Big Picture

News in Brief

"What happens after omicron? Four key questions about where the pandemic goes next" (BuzzFeed).

"How the COVID-19 pandemic might age us" (Nature).

"Report outlines 8 steps for current, future pandemics" (CIDRAP).

Shortages

"Doctors and patients are facing tough choices because of the national blood crisis" (NPR).

"A cascade of Omicron-driven shortages puts U.S. hospitals in a bind" (STAT).

Webinars

WHEN: 1700–1830 ET 26 January 2022 (on Zoom)

WHAT: The Third Year of COVID-19: Is This the New Normal?

DETAILS: "The latest COVID-19 Conversations webinar will provide insight into what we have learned from the omicron variant, and how that knowledge, as well as an evolving understanding of vaccine efficacy, emerging therapeutics, and public health guidance can help us move toward the new normal.

Participants can earn 1.5 CPH, CME, CNE, or CHES continuing education credits."

REGISTER: https://covid19conversations.org/Webinar-Registration

SEE ALSO: previous COVID-19 Conversations in this series

Journal Articles

Sci Rep: Understanding the uneven spread of COVID-19 in the context of the global interconnected economy (13 January 2022)

> "The worldwide spread of the COVID-19 pandemic is a complex and multivariate process differentiated across countries, and geographical distance is acceptable as a critical determinant of the uneven spreading. Although social connectivity is a defining condition for virus transmission, the network paradigm in the study of the COVID-19 spatio-temporal spread has not been used accordingly. Toward contributing to this demand, this paper uses network analysis to develop a multidimensional methodological framework for

> understanding the uneven (cross-country) spread of COVID-19 in the context of the globally interconnected economy. The globally interconnected system of tourism mobility is modeled as a complex network and studied within the context of a three-dimensional (3D) conceptual model composed of network connectivity, economic openness, and spatial impedance variables. The analysis reveals two main stages in the temporal spread of COVID-19, defined by the cutting-point of the 44th day from Wuhan. The first describes the outbreak in Asia and North America, the second stage in Europe, South America, and Africa, while the outbreak in Oceania intermediates. The analysis also illustrates that the average node degree exponentially decays as a function of COVID-19 emergence time. This finding implies that the highly connected nodes, in the Global Tourism Network (GTN), are disproportionally earlier infected by the pandemic than the other nodes. Moreover, countries with the same network centrality as China are early infected on average by COVID-19. The paper also finds that network interconnectedness, economic openness, and transport integration are critical determinants in the early global spread of the pandemic, and it reveals that the spatio-temporal patterns of the worldwide spreading of COVID-19 are more a matter of network interconnectivity than of spatial proximity."

Mil Med: Combating the Current Pandemic and Preparing for the Next: Lessons Learned From the COVID-19 Pandemic From the Perspective of Deployed Special Operations Forces (11 January 2022)

> "The coronavirus 2019 (COVID-19) pandemic continues to be a threat to global health, including the health of deployed armed forces. Servicemembers had to adjust to the "new normal" while maintaining the interests of the nation's security as well as that of our host nation partners. This commentary examines how Special Operations Forces operating within four different regions worldwide leveraged the challenges presented by the onset of this pandemic in maintaining stability, sustaining a ready force, and operating forward deployed. Deployed forces face constant difficulties with logistical support, varied medical resources access and a medical system predominantly focused on trauma care. At the onset of the COVID-19 pandemic there was little guidance specific to these circumstances which required an improvised adaptation of the recommendations set by national and Department of Defense medical authorities. Plans were constantly revised to match the ever changing medical and operational environment. Strategies such as the "Bubble Philosophy" and tiered force protection measures helped our units to maintain a rigorous training cycle. New methods of communication and training with our host nation partners such as the use of Unmanned Aerial Systems (UAS) platforms to survey host nation training became standard. Through these measures all of our forces were able to maintain operational capacity, protect the force, and maintain rapport with the host nations. We hope these experiences will provide a rough framework for future forces faced with a similar struggle. We also want to stress that challenges vary depending on the area of operations and the pathogen responsible for the pandemic."

SARS-CoV-2 Virus and Variants

News in Brief

"How fast the omicron variant is spreading around the world — The variant detected in November has overtaken delta as the dominant version of the coronavirus" (WP).

"After Omicron, we could use a break. We may just get it" (STAT).

"Omicron thwarts some of the world's most-used COVID vaccines" (Nature).

"The worst of the omicron wave could still be coming — A long descent from a peak in cases could exact a larger toll than even Omicron's blistering ascent" (Atlantic).

Journal Articles

MMWR: COVID-19 Incidence and Death Rates Among Unvaccinated and Fully Vaccinated Adults with and Without Booster Doses During Periods of Delta and Omicron Variant Emergence — 25 U.S. Jurisdictions, April 4–December 25, 2021 (early release 21 January 2022)

> "What is already known about this topic? Although COVID-19 vaccine effectiveness decreased with emergence of the Delta variant and waning of vaccine-induced immunity, protection against hospitalization and death has remained high.
>
> What is added by this report? In 25 U.S. jurisdictions, decreases in case incidence rate ratios for unvaccinated versus fully vaccinated persons with and without booster vaccine doses were observed when the Omicron variant emerged in December 2021. Protection against infection and death during the Delta-predominant period against infection during Omicron emergence were higher among booster vaccine dose recipients, and especially among persons aged 50–64 and ≥65 years.
>
> What are the implications for public health practice? COVID-19 vaccination protected against SARS-CoV-2 infection, even as the Omicron variant became predominant. All eligible persons should stay up to date with COVID-19 vaccination."

Science: Neutralization of SARS-CoV-2 Omicron by BNT162b2 mRNA vaccine–elicited human sera (18 January 2022)

> "The globally-circulating SARS-CoV-2 Variant of Concern Omicron (B.1.1.529) has a large number of mutations especially in the spike protein, indicating that recognition by neutralizing antibodies may be compromised. We tested Wuhan, Beta, Delta, or Omicron pseudoviruses with sera of 51 participants that received two or three doses of the mRNA-based COVID-19 vaccine BNT162b2. Following two doses, sera had >22-fold reduced neutralizing titers against Omicron compared to Wuhan pseudovirus. One month after the

> third vaccine dose, Omicron-neutralizing titers were increased 23-fold compared to two doses, with titers similar to Wuhan-neutralizing titers after two doses. The requirement of a third vaccine dose to effectively neutralize Omicron was confirmed using live SARS-CoV-2 in a subset of participants. These data suggest that three doses of the mRNA vaccine BNT162b2 may protect against Omicron-mediated COVID-19."

COVID-19 Vaccines

News in Brief

"Florida health official placed on leave after encouraging employees to get vaccinated" (WP).

"Why more Americans are saying they're 'vaxxed and done' — COVID has always divided Americans. The Omicron wave is even dividing the vaccinated" (Atlantic).

Journal Articles

MMWR: Effectiveness of a Third Dose of mRNA Vaccines Against COVID-19–Associated Emergency Department and Urgent Care Encounters and Hospitalizations Among Adults During Periods of Delta and Omicron Variant Predominance — VISION Network, 10 States, August 2021–January 2022 (early release 21 January 2021)

> "What is already known about this topic? COVID-19 mRNA vaccine effectiveness (VE) in preventing COVID-19 might decline because of waning of vaccine-induced immunity or variant immune evasion.
>
> What is added by this report? VE was significantly higher among patients who received their second mRNA COVID-19 vaccine dose <180 days before medical encounters compared with those vaccinated ≥180 days earlier. During both Delta- and Omicron-predominant periods, receipt of a third vaccine dose was highly effective at preventing COVID-19–associated emergency department and urgent care encounters (94% and 82%, respectively) and preventing COVID-19–associated hospitalizations (94% and 90%, respectively).
>
> What are the implications for public health practice? All unvaccinated persons should start vaccination as soon as possible. All adults who have received mRNA vaccines during their primary COVID-19 vaccination series should receive a third dose when eligible, and eligible persons should stay up to date with COVID-19 vaccinations."

MMWR: Use of the Janssen (Johnson & Johnson) COVID-19 Vaccine: Updated Interim Recommendations from the Advisory Committee on Immunization Practices — United States, December 2021 (21 January 2022)

> "What is already known about this topic? Cases of thrombosis with thrombocytopenia syndrome and Guillain-Barré syndrome have been reported after receipt of Janssen COVID-19 vaccine.
>
> What is added by this report? On December 16, 2021, after reviewing updated vaccine effectiveness and safety data, the Advisory Committee on Immunization Practices made a preferential recommendation for the use of mRNA COVID-19 vaccines over the Janssen adenoviral-vectored COVID-19 vaccine in all persons aged ≥18 years in the United States.
>
> What are the implications for public health practice? Pfizer-BioNTech or Moderna mRNA COVID-19 vaccines are preferred over the Janssen COVID-19 vaccine for primary and booster vaccination. The Janssen COVID-19 vaccine may be considered in some situations, including for persons with a contraindication to receipt of mRNA COVID-19 vaccines."

JAMA Netw Open: Frequency of Adverse Events in the Placebo Arms of COVID-19 Vaccine Trials: A Systematic Review and Meta-analysis (18 January 2022)

> "Question What was the frequency of adverse events (AEs) in the placebo groups of COVID-19 vaccine trials?
>
> Findings In this systematic review and meta-analysis of 12 articles including AE reports for 45 380 trial participants, systemic AEs were experienced by 35% of placebo recipients after the first dose and 32% after the second. Significantly more AEs were reported in the vaccine groups, but AEs in placebo arms (“nocebo responses”) accounted for 76% of systemic AEs after the first COVID-19 vaccine dose and 52% after the second dose.
>
> Meaning This study found that the rate of nocebo responses in placebo arms of COVID-19 vaccine trials was substantial; this finding should be considered in public vaccination programs.
>
> Importance Adverse events (AEs) after placebo treatment are common in randomized clinical drug trials. Systematic evidence regarding these nocebo responses in vaccine trials is important for COVID-19 vaccination worldwide especially because concern about AEs is reported to be a reason for vaccination hesitancy.
>
> Conclusions and Relevance In this systematic review and meta-analysis, significantly more AEs were reported in vaccine groups compared with placebo groups, but the rates of reported AEs in the placebo arms were still substantial. Public vaccination programs should consider these high rates of AEs in placebo arms."

Breakthrough Infections and Reinfections

News in Brief

"Omicron is forcing us to rethink mild COVID – The staggering number of infections among the vaccinated is changing Americans' pandemic mindset" (Atlantic).

Journal Articles

JAMA: Comparison of mRNA-1273 and BNT162b2 Vaccines on Breakthrough SARS-CoV-2 Infections, Hospitalizations, and Death During the Delta-Predominant Period (20 January 2022)

> "This study examines breakthrough SARS-CoV-2 infections, hospitalizations, and mortality in March-August 2021, when the Delta variant predominated, among a general US cohort vaccinated with mRNA-1273 or BNT162b2."

MMWR: COVID-19 Cases and Hospitalizations by COVID-19 Vaccination Status and Previous COVID-19 Diagnosis — California and New York, May–November 2021 (early release 19 January 2022)

> "What is already known about this topic? Data are limited regarding the risks for SARS-CoV-2 infection and hospitalization after COVID-19 vaccination and previous infection.
>
> What is added by this report? During May–November 2021, case and hospitalization rates were highest among persons who were unvaccinated without a previous diagnosis. Before Delta became the predominant variant in June, case rates were higher among persons who survived a previous infection than persons who were vaccinated alone. By early October, persons who survived a previous infection had lower case rates than persons who were vaccinated alone.
>
> What are the implications for public health practice? Although the epidemiology of COVID-19 might change as new variants emerge, vaccination remains the safest strategy for averting future SARS-CoV-2 infections, hospitalizations, long-term sequelae, and death. Primary vaccination, additional doses, and booster doses are recommended for all eligible persons. Additional future recommendations for vaccine doses might be warranted as the virus and immunity levels change."

Clin Infect Dis: Necessity of COVID-19 Vaccination in Persons Who Have Already Had COVID-19 (13 January 2022)

> "Background: The purpose of this study was to evaluate the necessity of COVID-19 vaccination in persons with prior COVID-19.

Methods: Employees of Cleveland Clinic working in Ohio on Dec 16, 2020, the day COVID-19 vaccination was started, were included. Anyone who tested positive for COVID-19 at least once before the study start date was considered previously infected. One was considered vaccinated 14 days after receiving the second dose of a COVID-19 mRNA vaccine. The cumulative incidence of COVID-19, symptomatic COVID-19, and hospitalizations for COVID-19, were examined over the next year.

Results: Among 52238 employees, 4718 (9%) were previously infected, and 36922 (71%) were vaccinated by the study's end. Cumulative incidence of COVID-19 was substantially higher throughout for those previously uninfected who remained unvaccinated than for all other groups, lower for the vaccinated than unvaccinated, and lower for those previously infected than those not. Incidence of COVID-19 increased dramatically in all groups after the Omicron variant emerged. In multivariable Cox proportional hazards regression, both prior COVID-19 and vaccination were independently associated with significantly lower risk of COVID-19. Among previously infected subjects, a lower risk of COVID-19 overall was not demonstrated, but vaccination was associated with a significantly lower risk of symptomatic COVID-19 in both the pre-Omicron (HR 0.60, 95% CI 0.40-0.90) and Omicron (HR 0.36, 95% CI 0.23-0.57) phases.

Conclusions: Both previous infection and vaccination provide substantial protection against COVID-19. Vaccination of previously infected individuals does not provide additional protection against COVID-19 for several months, but after that provides significant protection at least against symptomatic COVID-19."

NEJM: Duration of Protection against Mild and Severe Disease by Covid-19 Vaccines (12 January 2022)

"Background: Vaccines against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes coronavirus disease 2019 (Covid-19), have been used since December 2020 in the United Kingdom. Real-world data have shown the vaccines to be highly effective against Covid-19 and related severe disease and death. Vaccine effectiveness may wane over time since the receipt of the second dose of the ChAdOx1-S (ChAdOx1 nCoV-19) and BNT162b2 vaccines.

Methods: We used a test-negative case-control design to estimate vaccine effectiveness against symptomatic Covid-19 and related hospitalization and death in England. Effectiveness of the ChAdOx1-S and BNT162b2 vaccines was assessed according to participant age and status with regard to coexisting conditions and over time since receipt of the second vaccine dose to investigate waning of effectiveness separately for the B.1.1.7 (alpha) and B.1.617.2 (delta) variants.

Results: Vaccine effectiveness against symptomatic Covid-19 with the delta variant peaked in the early weeks after receipt of the second dose and then decreased by 20 weeks to

44.3% (95% confidence interval [CI], 43.2 to 45.4) with the ChAdOx1-S vaccine and to 66.3% (95% CI, 65.7 to 66.9) with the BNT162b2 vaccine. Waning of vaccine effectiveness was greater in persons 65 years of age or older than in those 40 to 64 years of age. At 20 weeks or more after vaccination, vaccine effectiveness decreased less against both hospitalization, to 80.0% (95% CI, 76.8 to 82.7) with the ChAdOx1-S vaccine and 91.7% (95% CI, 90.2 to 93.0) with the BNT162b2 vaccine, and death, to 84.8% (95% CI, 76.2 to 90.3) and 91.9% (95% CI, 88.5 to 94.3), respectively. Greater waning in vaccine effectiveness against hospitalization was observed in persons 65 years of age or older in a clinically extremely vulnerable group and in persons 40 to 64 years of age with underlying medical conditions than in healthy adults.

Conclusions: We observed limited waning in vaccine effectiveness against Covid-19-related hospitalization and death at 20 weeks or more after vaccination with two doses of the ChAdOx1-S or BNT162b2 vaccine. Waning was greater in older adults and in those in a clinical risk group."

NEJM: Effectiveness of Covid-19 Vaccines over a 9-Month Period in North Carolina (12 January 2022)

"Background: The duration of protection afforded by coronavirus disease 2019 (Covid-19) vaccines in the United States is unclear. Whether the increase in postvaccination infections during the summer of 2021 was caused by declining immunity over time, the emergence of the B.1.617.2 (delta) variant, or both is unknown.

Methods: We extracted data regarding Covid-19-related vaccination and outcomes during a 9-month period (December 11, 2020, to September 8, 2021) for approximately 10.6 million North Carolina residents by linking data from the North Carolina Covid-19 Surveillance System and the Covid-19 Vaccine Management System. We used a Cox regression model to estimate the effectiveness of the BNT162b2 (Pfizer-BioNTech), mRNA-1273 (Moderna), and Ad26.COV2.S (Johnson & Johnson-Janssen) vaccines in reducing the current risks of Covid-19, hospitalization, and death, as a function of time elapsed since vaccination.

Results: For the two-dose regimens of messenger RNA (mRNA) vaccines BNT162b2 (30 µg per dose) and mRNA-1273 (100 µg per dose), vaccine effectiveness against Covid-19 was 94.5% (95% confidence interval [CI], 94.1 to 94.9) and 95.9% (95% CI, 95.5 to 96.2), respectively, at 2 months after the first dose and decreased to 66.6% (95% CI, 65.2 to 67.8) and 80.3% (95% CI, 79.3 to 81.2), respectively, at 7 months. Among early recipients of BNT162b2 and mRNA-1273, effectiveness decreased by approximately 15 and 10 percentage points, respectively, from mid-June to mid-July, when the delta variant became dominant. For the one-dose regimen of Ad26.COV2.S (5 × 1010 viral particles), effectiveness against Covid-19 was 74.8% (95% CI, 72.5 to 76.9) at 1 month and decreased to 59.4% (95% CI, 57.2 to 61.5) at 5 months. All three vaccines maintained better effectiveness in

preventing hospitalization and death than in preventing infection over time, although the two mRNA vaccines provided higher levels of protection than Ad26.COV2.S.

Conclusions: All three Covid-19 vaccines had durable effectiveness in reducing the risks of hospitalization and death. Waning protection against infection over time was due to both declining immunity and the emergence of the delta variant."

Treatments and Management

News in Brief

Due to the Omicron variant, updated NIH COVID guidelines recommend against two monoclonal antibody cocktails (bamlanivimab/etesevimab and casirivimab/imdevimab) for early treatment, and instead recommend sotrovimab or a 3-day course of remdesivir for such outpatients (NIH).

"FDA takes actions to expand use of treatment for outpatients with mild-to-moderate COVID-19" (FDA).

"Dozens of firms to make cheap version of Merck COVID pill for poorer nations" (Reuters).

Journal Articles

CMAJ: Remdesivir for the treatment of patients in hospital with COVID-19 in Canada: a randomized controlled trial (19 January 2022)

"Background: The role of remdesivir in the treatment of patients in hospital with COVID-19 remains ill defined in a global context. The World Health Organization Solidarity randomized controlled trial (RCT) evaluated remdesivir in patients across many countries, with Canada enrolling patients using an expanded data collection format in the Canadian Treatments for COVID-19 (CATCO) trial. We report on the Canadian findings, with additional demographics, characteristics and clinical outcomes, to explore the potential for differential effects across different health care systems.

Methods: We performed an open-label, pragmatic RCT in Canadian hospitals, in conjunction with the Solidarity trial. We randomized patients to 10 days of remdesivir (200 mg intravenously [IV] on day 0, followed by 100 mg IV daily), plus standard care, or standard care alone. The primary outcome was in-hospital mortality. Secondary outcomes included changes in clinical severity, oxygen- and ventilator-free days (at 28 d), incidence of new oxygen or mechanical ventilation use, duration of hospital stay, and adverse event rates.

> We performed a priori subgroup analyses according to duration of symptoms before enrolment, age, sex and severity of symptoms on presentation.
>
> Results: Across 52 Canadian hospitals, we randomized 1282 patients between Aug. 14, 2020, and Apr. 1, 2021, to remdesivir (n = 634) or standard of care (n = 648). Of these, 15 withdrew consent or were still in hospital, for a total sample of 1267 patients. Among patients assigned to receive remdesivir, in-hospital mortality was 18.7%, compared with 22.6% in the standard-of-care arm (relative risk [RR] 0.83 (95% confidence interval [CI] 0.67 to 1.03), and 60-day mortality was 24.8% and 28.2%, respectively (95% CI 0.72 to 1.07). For patients not mechanically ventilated at baseline, the need for mechanical ventilation was 8.0% in those assigned remdesivir, and 15.0% in those receiving standard of care (RR 0.53, 95% CI 0.38 to 0.75). Mean oxygen-free and ventilator-free days at day 28 were 15.9 (± standard deviation [SD] 10.5) and 21.4 (± SD 11.3) in those receiving remdesivir and 14.2 (± SD 11) and 19.5 (± SD 12.3) in those receiving standard of care (p = 0.006 and 0.007, respectively). There was no difference in safety events of new dialysis, change in creatinine, or new hepatic dysfunction between the 2 groups.
>
> Interpretation: Remdesivir, when compared with standard of care, has a modest but significant effect on outcomes important to patients and health systems, such as the need for mechanical ventilation."

PLoS Comput Biol: Longitudinally monitored immune biomarkers predict the timing of COVID-19 outcomes (18 January 2022)

> "The clinical outcome of SARS-CoV-2 infection varies widely between individuals. Machine learning models can support decision making in healthcare by assessing fatality risk in patients that do not yet show severe signs of COVID-19. Most predictive models rely on static demographic features and clinical values obtained upon hospitalization. However, time-dependent biomarkers associated with COVID-19 severity, such as antibody titers, can substantially contribute to the development of more accurate outcome models. Here we show that models trained on immune biomarkers, longitudinally monitored throughout hospitalization, predicted mortality and were more accurate than models based on demographic and clinical data upon hospital admission. Our best-performing predictive models were based on the temporal analysis of anti-SARS-CoV-2 Spike IgG titers, white blood cell (WBC), neutrophil and lymphocyte counts. These biomarkers, together with C-reactive protein and blood urea nitrogen levels, were found to correlate with severity of disease and mortality in a time-dependent manner. Shapley additive explanations of our model revealed the higher predictive value of day post-symptom onset (PSO) as hospitalization progresses and showed how immune biomarkers contribute to predict mortality. In sum, we demonstrate that the kinetics of immune biomarkers can inform clinical models to serve as a powerful monitoring tool for predicting fatality risk in

hospitalized COVID-19 patients, underscoring the importance of contextualizing clinical parameters according to their time post-symptom onset."

Aging: Severe versus common COVID-19: an early warning nomogram model (17 January 2022)

"The wide spread of coronavirus disease 2019 is currently the most rigorous health threat, and the clinical outcomes of severe patients are extremely poor. In this study, we establish an early warning nomogram model related to severe versus common COVID-19. A total of 1059 COVID-19 patients were analyzed in the primary cohort and divided into common and severe according to the guidelines on the Diagnosis and Treatment of COVID-19 by the National Health Commission of China (7th version). The clinical data were collected for logistic regression analysis to assess the risk factors for severe versus common type. Furthermore, 123 COVID-19 patients were reviewed as the validation cohort to assess the performance of this model. Multivariate logistic analysis revealed that age, dyspnea, lymphocyte count, C-reactive protein and interleukin-6 were independent factors for prewarning the severe type occurrence. Then, the early warning nomogram model including these risk factors for inferring the severe disease occurrence out of common type of COVID-19 was constructed. The C-index of this nomogram in the primary cohort was 0.863, 95% confidence interval (CI) (0.836-0.889). Meanwhile, in the validation cohort, the C-index of this nomogram was 0.889, 95% CI (0.828-0.950). In both the primary cohort and validation cohorts, the calibration curve showed good agreement between prediction and actual probability. The early warning model shows that data at the very beginning including age, dyspnea, lymphocyte count, CRP, and IL-6 may prewarn the severe disease occurrence to some extent, which could help clinicians early and timely treatment."

Int J Infect Dis: Predictive risk factors for hospitalization and response to colchicine in patients with COVID-19 (14 January 2022)

"Objective: A predictive model for hospitalization due to COVID-19 or death was developed in the placebo group (N=2084) from a large clinical trial of colchicine in COVID-19 patients (N = 4159).

Results: The seven variables retained in the predictive model were age, sex, body-mass index, history of respiratory disease, use of diabetes drugs, use of anticoagulants and use of oral steroids at the time of randomization. An optimal threshold value identified from the predictive model was used to classify high-risk patients (those with a predicted probability above the optimal threshold) and low-risk patients (those with a predicted probability below the optimal threshold). The number needed to treat to prevent one hospitalization or death with colchicine treatment decreased from 71 in the whole study population (N = 4159) to 29 in the high-risk subgroup (N=1692).

Conclusion: This model could serve to identify high-risk subjects who will particularly benefit from early colchicine therapy."

JAMA: Effect of Subcutaneous Casirivimab and Imdevimab Antibody Combination vs Placebo on Development of Symptomatic COVID-19 in Early Asymptomatic SARS-CoV-2 Infection: A Randomized Clinical Trial (14 January 2022)

> "Question Does treatment with a subcutaneous combination of casirivimab and imdevimab prevent progression to symptomatic COVID-19 when given to recently infected, asymptomatic individuals?
>
> Findings In this randomized clinical trial that included 314 SARS-CoV-2 reverse transcriptase–quantitative polymerase chain reaction–positive individuals living with an infected household contact, 29.0% of asymptomatic seronegative participants treated with subcutaneous casirivimab and imdevimab, 1200 mg (600 mg of each antibody), developed symptomatic COVID-19 over 28 days vs 42.3% of those treated with placebo. This difference was statistically significant.
>
> Meaning Treatment with subcutaneous casirivimab and imdevimab antibody combination compared with placebo significantly reduced the incidence of symptomatic COVID-19 among recently exposed, asymptomatic individuals."

JAMA: COVID-19 Therapeutics for Nonhospitalized Patients (14 January 2022)

> "This Viewpoint provides a summary of currently available therapeutics for nonhospitalized patients with COVID-19 in the setting of the Omicron variant including principles for equitable allocation."

Pre-Existing Conditions, Comorbidities, and Complications

Journal Articles

Nat Genet: The *UGT2A1/UGT2A2* locus is associated with COVID-19-related loss of smell or taste (17 January 2022)

> "Using online surveys, we collected data regarding COVID-19-related loss of smell or taste from 69,841 individuals. We performed a multi-ancestry genome-wide association study and identified a genome-wide significant locus in the vicinity of the UGT2A1 and UGT2A2 genes. Both genes are expressed in the olfactory epithelium and play a role in metabolizing odorants. These findings provide a genetic link to the biological mechanisms underlying COVID-19-related loss of smell or taste."

Obstet Gynecol: Association Between Menstrual Cycle Length and Coronavirus Disease 2019 (COVID-19) Vaccination: A U.S. Cohort (05 January 2022)

> "Objective: To assess whether coronavirus disease 2019 (COVID-19) vaccination is associated with changes in cycle or menses length in those receiving vaccination as compared with an unvaccinated cohort.
>
> Methods: We analyzed prospectively tracked menstrual cycle data using the application "Natural Cycles." We included U.S. residents aged 18-45 years with normal cycle lengths (24-38 days) for three consecutive cycles before the first vaccine dose followed by vaccine-dose cycles (cycles 4-6) or, if unvaccinated, six cycles over a similar time period. We calculated the mean within-individual change in cycle and menses length (three prevaccine cycles vs first- and second-dose cycles in the vaccinated cohort, and the first three cycles vs cycles four and five in the unvaccinated cohort). We used mixed-effects models to estimate the adjusted difference in change in cycle and menses length between the vaccinated and unvaccinated cohorts.
>
> Results: We included 3,959 individuals (vaccinated 2,403; unvaccinated 1,556). Most of the vaccinated cohort received the Pfizer-BioNTech vaccine (55%) (Moderna 35%, Johnson & Johnson/Janssen 7%). Overall, COVID-19 vaccine was associated with a less than 1-day change in cycle length for both vaccine-dose cycles compared with prevaccine cycles (first dose 0.71 day-increase, 98.75% CI 0.47-0.94; second dose 0.91, 98.75% CI 0.63-1.19); unvaccinated individuals saw no significant change compared with three baseline cycles (cycle four 0.07, 98.75% CI -0.22 to 0.35; cycle five 0.12, 98.75% CI -0.15 to 0.39). In adjusted models, the difference in change in cycle length between the vaccinated and unvaccinated cohorts was less than 1 day for both doses (difference in change: first dose 0.64 days, 98.75% CI 0.27-1.01; second dose 0.79 days, 98.75% CI 0.40-1.18). Change in menses length was not associated with vaccination.
>
> Conclusion: Coronavirus disease 2019 (COVID-19) vaccination is associated with a small change in cycle length but not menses length."

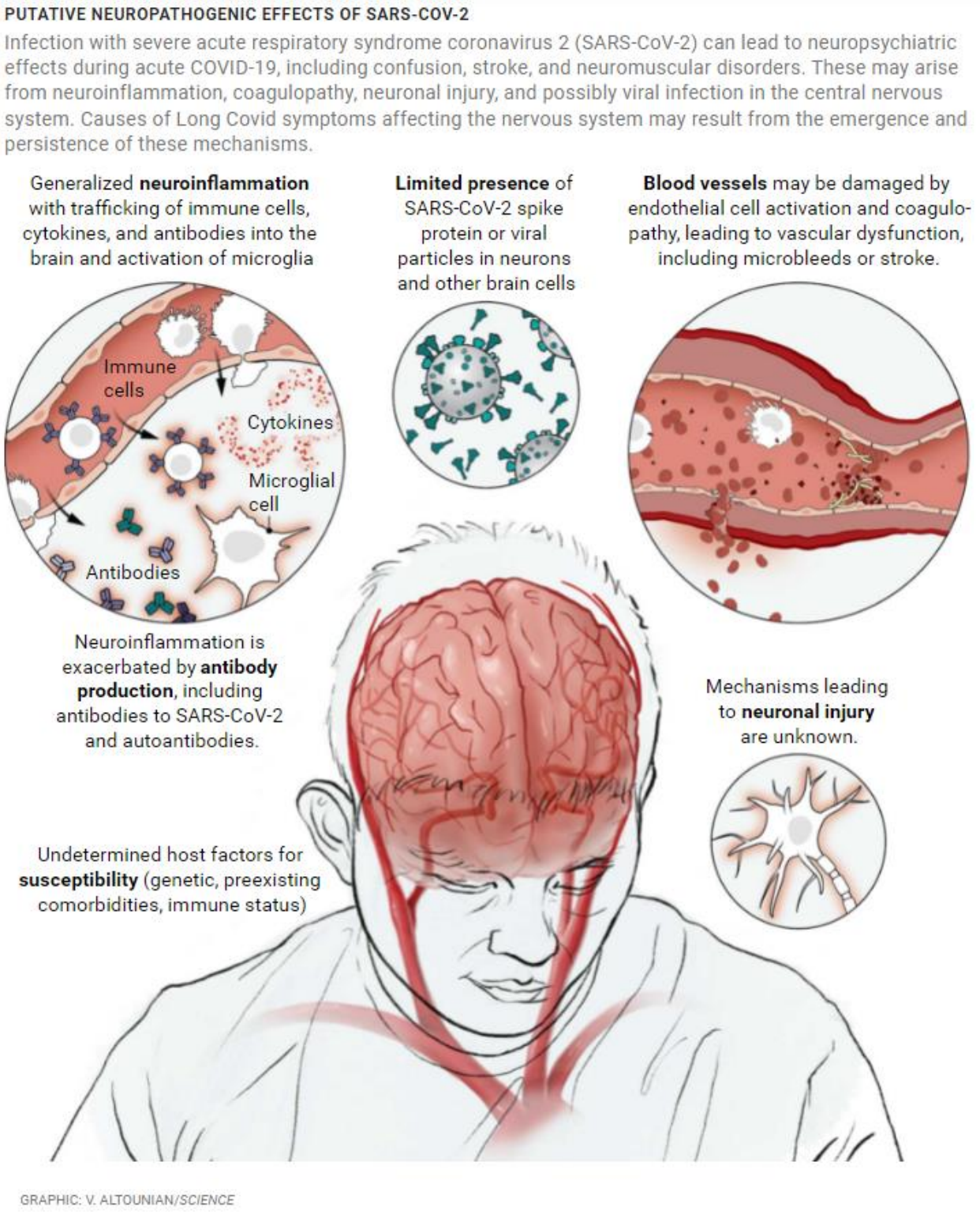
Long COVID / Post-COVID Syndrome

News in Brief

"How to spot the signs of long Covid — and what to do next" (Vox).

Journal Articles

Science: Nervous system consequences of COVID-19 (20 January 2022)



Maternal Health, Pregnancy, and Perinatal Period

News in Brief

"COVID vaccines safely protect pregnant people: the data are in" (Nature).

"Unvaccinated pregnant people are at higher risk for Covid complications and newborn deaths" (STAT).

Journal Articles

Am J Epidemiol: A prospective cohort study of COVID-19 vaccination, SARS-CoV-2 infection, and fertility (20 January 2022)

> "Some reproductive-aged individuals remain unvaccinated against COVID-19 due to concerns about potential adverse effects on fertility. We examined the associations of COVID-19 vaccination and SARS-CoV-2 infection with fertility among couples trying to conceive spontaneously using data from an internet-based preconception cohort study. We enrolled 2,126 self-identified females residing in the U.S. or Canada during December 2020-September 2021 and followed them through November 2021. Participants completed questionnaires every 8 weeks on sociodemographics, lifestyle, medical factors, and partner information. We fit proportional probabilities regression models to estimate associations between self-reported COVID-19 vaccination and SARS-CoV-2 infection in both partners with fecundability, the per-cycle probability of conception, adjusting for potential confounders. COVID-19 vaccination was not appreciably associated with fecundability in either partner (female FR=1.08, 95% CI: 0.95, 1.23; male FR=0.95, 95% CI: 0.83, 1.10). Female SARS-CoV-2 infection was not strongly associated with fecundability (FR=1.07, 95% CI: 0.87, 1.31). Male infection was associated with a transient reduction in fecundability (FR=0.82, 95% CI: 0.47, 1.45 for infection within 60 days; FR=1.16, 95% CI: 0.92, 1.47 for infection >60 days). These findings indicate that male SARS-CoV-2 infection may be associated with a short-term decline in fertility and that COVID-19 vaccination does not impair fertility in either partner."

Pediatr Res: No infectious SARS-CoV-2 in breast milk from a cohort of 110 lactating women (19 January 2022)

> "Background: Genomic RNA of severe acute respiratory syndrome-associated coronavirus type 2 (SARS-CoV-2) has been detected in the breast milk of lactating women, but its pathological significance has remained uncertain due to the small size of prior studies.
>
> Methods: Breast milk from 110 lactating women was analyzed by reverse transcription-polymerase chain reaction (285 samples) and viral culture (160 samples). Those containing

SARS-CoV-2 viral RNA (vRNA) were examined for the presence of subgenomic RNA (sgRNA), a putative marker of infectivity.

Results: Sixty-five women had a positive SARS-CoV-2 diagnostic test, 9 had symptoms but negative diagnostic tests, and 36 symptomatic women were not tested. SARS-CoV-2 vRNA was detected in the milk of 7 (6%) women with either a confirmed infection or symptomatic illness, including 6 of 65 (9%) women with a positive SARS-CoV-2 diagnostic test. Infectious virus was not detected in any culture and none had detectable sgRNA. In control experiments, infectious SARS-CoV-2 could be cultured after addition to breastmilk despite several freeze-thaw cycles, as it occurs in the storage and usage of human milk.

Conclusions: SARS-CoV-2 RNA can be found infrequently in the breastmilk after recent infection, but we found no evidence that breastmilk contains an infectious virus or that breastfeeding represents a risk factor for transmission of infection to infants.

Impact: This article goes beyond prior small studies to provide evidence that infectious SARS-CoV-2 is not present in the milk of lactating women with recent infection, even when SARS-CoV-2 RNA is detected. Recent SARS-CoV-2 infection or detection of its RNA in human milk is not a contraindication to breastfeeding."

Nat Commun: Maternal-fetal immune responses in pregnant women infected with SARS-CoV-2 (18 January 2022)

"Pregnant women represent a high-risk population for severe/critical COVID-19 and mortality. However, the maternal-fetal immune responses initiated by SARS-CoV-2 infection, and whether this virus is detectable in the placenta, are still under investigation. Here we show that SARS-CoV-2 infection during pregnancy primarily induces unique inflammatory responses at the maternal-fetal interface, which are largely governed by maternal T cells and fetal stromal cells. SARS-CoV-2 infection during pregnancy is also associated with humoral and cellular immune responses in the maternal blood, as well as with a mild cytokine response in the neonatal circulation (i.e., umbilical cord blood), without compromising the T-cell repertoire or initiating IgM responses. Importantly, SARS-CoV-2 is not detected in the placental tissues, nor is the sterility of the placenta compromised by maternal viral infection. This study provides insight into the maternal-fetal immune responses triggered by SARS-CoV-2 and emphasizes the rarity of placental infection."

Clin Infect Dis: Clinical characteristics and outcomes of COVID-19 in pregnant women: a propensity score matched analysis of the data from the COVID-19 Registry Japan (17 January 2022)

"Background: Several studies have investigated whether pregnancy is a risk factor for developing severe COVID-19; however, the results remain controversial. In addition, the

information regarding risk factors for developing severe COVID-19 in pregnant women is limited.

Methods: A retrospective cohort study analyzing the data from the nationwide COVID-19 registry in Japan was conducted. Propensity score matched analysis was performed to compare COVID-19 severity between pregnant and nonpregnant women. Multivariate analysis was also conducted to evaluate risk factors for developing moderate-to-severe COVID-19 in pregnant women.

Results: During the study period, 254 pregnant and 3752 nonpregnant women of reproductive age were identified. After propensity score matching, 187 pregnant women and 935 nonpregnant women were selected. A composite outcome of moderate-to-severe COVID-19 was more frequently observed in pregnant women than that of nonpregnant women (n=18, 9.6% vs. n=46, 4.9%; P=0.0155). In multivariate analysis, the presence of underlying diseases and being in the second-to-third trimester of pregnancy were recognized as risk factors for moderate-to-severe COVID-19 in pregnant women (odds ratio [95% confidence interval]: 5.295 [1.21-23.069] and 3.871 [1.201-12.477], respectively).

Conclusions: Pregnancy could be a risk factor for moderate-to-severe COVID-19 for women in Japan. In addition to the presence of comorbidities, advanced pregnancy stages may contribute to greater risks for developing moderate-to-severe COVID-19 in pregnant women."

J Infect Dis: SARS-CoV-2 placentitis associated with B.1.617.2 (Delta) variant and fetal distress or demise (13 January 2022)

"There is limited information on the specific impact of maternal infection with the SARS-CoV-2 B.1.617.2 (Delta) variant on pregnancy outcomes. We present two cases of intrauterine fetal demise and one case of severe fetal distress in the setting of maternal infection with Delta-variant SARS-CoV-2. In all cases, fetal demise or distress occurred within 14 days of COVID-19 diagnosis. Evaluation revealed maternal viremia, high nasopharyngeal viral load, evidence of placental infection with Delta-variant SARS-CoV-2, and hallmark features of SARS-CoV-2 placentitis. We suggest that Delta-variant SARS-CoV-2 infection during pregnancy warrants vigilance for placental dysfunction and fetal compromise regardless of disease severity."

J Infect Dis: Intrauterine fetal demise in the third trimester of pregnancy associated with mild infection with the SARS-CoV-2 Delta variant without protection from vaccination (13 January 2022)

"SARS-CoV-2 has a higher infection rate in pregnant women than age-matched adults. With increased infectivity and transmissibility, the Delta variant is predominant worldwide. Here, we describe intrauterine fetal demise in an unvaccinated women with mild symptoms of

SARS-CoV-2 Delta variant infection. Histology and elevated proinflammatory responses of the placenta suggest that fetal demise was associated with placental malperfusion due to Delta variant infection. This study suggests that the Delta variant can cause severe morbidity and mortality to fetuses. Vaccination should continve to be advocated and will likely continue to reduce SARS-CoV-2 infection risks for pregnant women and their fetuses."

Lancet Digit Health: The effect of maternal SARS-CoV-2 infection timing on birth outcomes: a retrospective multicentre cohort study (13 January 2022)

"Background: The impact of maternal SARS-CoV-2 infection remains unclear. In this study, we evaluated the risk of maternal SARS-CoV-2 infection on birth outcomes and how this is modulated by the pregnancy trimester in which the infection occurs. We also developed models to predict gestational age at delivery for people following a SARS-CoV-2 infection during pregnancy.

Methods: We did a retrospective cohort study of the impact of maternal SARS-CoV-2 infection on birth outcomes. We used clinical data from Providence St Joseph Health electronic health records for pregnant people who delivered in the USA at the Providence, Swedish, or Kadlec sites in Alaska, California, Montana, Oregon, or Washington. The SARS-CoV-2 positive cohort included people who had a positive SARS-CoV-2 PCR-based test during pregnancy, subdivided by trimester of infection. No one in this cohort had been vaccinated for COVID-19 at time of infection. The SARS-CoV-2 negative cohort were people with at least one negative SARS-CoV-2 PCR-based test and no positive tests during pregnancy. Cohorts were matched on common covariates impacting birth outcomes, and univariate and multivariate analysis were done to investigate risk factors and predict outcomes. The primary outcome was gestational age at delivery with annotation of preterm birth classification. We trained multiple supervised learning models on 24 features of the SARS-CoV-2 positive cohort to evaluate performance and feature importance for each model and discuss the impact of SARS-CoV-2 infection on gestational age at delivery.

Findings: Between March 5, 2020, and July 4, 2021, 73 666 pregnant people delivered, 18 335 of whom had at least one SARS-CoV-2 test during pregnancy before Feb 14, 2021. We observed 882 people infected with SARS-CoV-2 during their pregnancy (first trimester n=85; second trimester n=226; and third trimester n=571) and 19 769 people who have never tested positive for SARS-CoV-2 and received at least one negative SARS-CoV-2 test during their pregnancy. SARS-CoV-2 infection indicated an increased risk of preterm delivery ($p<0·05$) and stillbirth ($p<0·05$), accounted for primarily by first and second trimester SARS-CoV-2 infections. Gestational age at SARS-CoV-2 infection was correlated with gestational age at delivery ($p<0·01$) and had the greatest impact on predicting gestational age at delivery. The people in this study had mild or moderate SARS-CoV-2 infections and acute COVID-19 severity was not correlated with gestational age at delivery ($p=0·31$).

> Interpretation: These results suggest that pregnant people would benefit from increased monitoring and enhanced prenatal care after first or second trimester SARS-CoV-2 infection, regardless of acute COVID-19 severity"

Nat Med: SARS-CoV-2 infection and COVID-19 vaccination rates in pregnant women in Scotland (13 January 2022)

> "Population-level data on COVID-19 vaccine uptake in pregnancy and SARS-CoV-2 infection outcomes are lacking. We describe COVID-19 vaccine uptake and SARS-CoV-2 infection in pregnant women in Scotland, using whole-population data from a national, prospective cohort. Between the start of a COVID-19 vaccine program in Scotland, on 8 December 2020 and 31 October 2021, 25,917 COVID-19 vaccinations were given to 18,457 pregnant women. Vaccine coverage was substantially lower in pregnant women than in the general female population of 18-44 years; 32.3% of women giving birth in October 2021 had two doses of vaccine compared to 77.4% in all women. The extended perinatal mortality rate for women who gave birth within 28 d of a COVID-19 diagnosis was 22.6 per 1,000 births (95% CI 12.9-38.5; pandemic background rate 5.6 per 1,000 births; 452 out of 80,456; 95% CI 5.1-6.2). Overall, 77.4% (3,833 out of 4,950; 95% CI 76.2-78.6) of SARS-CoV-2 infections, 90.9% (748 out of 823; 95% CI 88.7-92.7) of SARS-CoV-2 associated with hospital admission and 98% (102 out of 104; 95% CI 92.5-99.7) of SARS-CoV-2 associated with critical care admission, as well as all baby deaths, occurred in pregnant women who were unvaccinated at the time of COVID-19 diagnosis. Addressing low vaccine uptake rates in pregnant women is imperative to protect the health of women and babies in the ongoing pandemic."

Pediatric Population

News in Brief

"The COVID generation: how is the pandemic affecting kids' brains?" (Nature)

Journal Articles

MMWR: Risk for Newly Diagnosed Diabetes >30 Days After SARS-CoV-2 Infection Among Persons Aged <18 Years — United States, March 1, 2020–June 28, 2021 (14 January 2022)

> "What is already known about this topic? SARS-CoV-2 infection is associated with worsening of diabetes symptoms, and persons with diabetes are at increased risk for severe COVID-19. SARS-CoV-2 infection might also induce newly diagnosed diabetes.

> What is added by this report? Persons aged <18 years with COVID-19 were more likely to receive a new diabetes diagnosis >30 days after infection than were those without COVID-19 and those with prepandemic acute respiratory infections. Non–SARS-CoV-2 respiratory infection was not associated with an increased risk for diabetes.
>
> What are the implications for public health practice? The increased diabetes risk among persons aged <18 years following COVID-19 highlights the importance of COVID-19 prevention strategies in this age group, including vaccination for all eligible persons and chronic disease prevention and treatment."

MMWR: Effectiveness of BNT162b2 (Pfizer-BioNTech) mRNA Vaccination Against Multisystem Inflammatory Syndrome in Children Among Persons Aged 12–18 Years — United States, July–December 2021 (14 January 2022)

> "What is already known about this topic? The Pfizer-BioNTech vaccine, currently authorized for persons aged ≥5 years, provides a high level of protection against severe COVID-19 in persons aged 12–18 years. Vaccine effectiveness against multisystem inflammatory syndrome in children (MIS-C), which can occur 2–6 weeks after SARS-CoV-2 infection, has remained uncharacterized.
>
> What is added by this report? Estimated effectiveness of 2 doses of Pfizer-BioNTech vaccine against MIS-C was 91% (95% CI = 78%–97%). Among critically ill MIS-C case-patients requiring life support, all were unvaccinated.
>
> What are the implications for public health practice? Receipt of 2 doses of Pfizer-BioNTech vaccine is highly effective in preventing MIS-C in persons aged 12–18 years. These findings further reinforce the COVID-19 vaccination recommendation for eligible children."

Healthcare Workers

News in Brief

"Stressed hospitals are asking workers with covid to return — even if they may be infectious" (WP).

"Police: Man tried to kill 2 North Carolina hospital workers" (AP).

"Why so many women physicians are quitting" (HBR).

Journal Articles

BMJ Open: Training and redeployment of healthcare workers to intensive care units (ICUs) during the COVID-19 pandemic: a systematic review (07 January 2022)

> "Objectives: The rapid influx of patients with COVID-19 to intensive care at a rate that exceeds pre-existing staff capacity has required the rapid development of innovative redeployment and training strategies, which considered patient care and infection control.
>
> The aim of this study was to provide a detailed understanding of redeployment and training during the first year of the COVID-19 pandemic by capturing and considering the merit of the strategies enlisted and the experiences and needs of redeployed healthcare workers (HCWs).
>
> Design: The review involved a systematic search of key terms related to intensive care AND training AND redeployment AND healthcare workers within nine databases (Medline, CINAHL, PsychINFO, MedRxiv, Web of Science, The Health Management Consortium database, Social Science Research Network, OpenGrey and TRIP), which took place on 16 July 2021. Analysis consisted of a synthesis of quantitative study outputs and framework-based thematic analysis of qualitative study outputs and grey literature. These results were then combined applying an interpretative synthesis. We followed Preferred Reporting Items for Systematic Reviews and Meta-Analyses, and the review protocol was available online.
>
> Results: Forty papers were analysed. These took place primarily in the UK (n=15, 37.5%) and USA (n=17, 42.5%). Themes presented in the results are redeployment: implementation strategies and learning; redeployed HCWs' experience and strategies to address their needs; redeployed HCWs' learning needs; training formats offered and training evaluations; and future redeployment and training delivery. Based on this, key principles for successful redeployment and training were proposed.
>
> Conclusions: The COVID-19 pandemic presents unique challenges to develop flexible redeployment strategies and deliver training promptly while following infection control recommendations. This review synthesises original approaches to tackle these challenges, which are relevant to inform the development of targeted and adaptative training and redeployment plans considering the needs of HCWs."

Disparities and Health Equity

News in Brief

"The new kind of vaccine inequality — As vaccine shipments finally surge into poorer countries, the world is in danger of trading in one form of vaccine inequality for another, with disparities in access replaced by disparities in the ability to distribute them on the ground" (WP).

"It's a terrible idea to deny medical care to unvaccinated people" (Atlantic).

Journal Articles

MMWR: Racial and Ethnic Disparities in Receipt of Medications for Treatment of COVID-19 — United States, March 2020–August 2021 (21 January 2022)

> "What is already known about this topic? Racial and ethnic disparities in SARS-CoV-2 infection risk and death from COVID-19 have been well documented.
>
> What is added by this report? Analysis of data from 41 health care systems participating in the PCORnet, the National Patient-Centered Clinical Research Network found lower use of monoclonal antibody treatment among Black, Asian, and Other race and Hispanic patients with positive SARS-CoV-2 test results, relative to White and non-Hispanic patients. Racial and ethnic differences were smaller for inpatient administration of remdesivir and dexamethasone.
>
> What are the implications for public health practice? Equitable receipt of COVID-19 treatments by race and ethnicity along with vaccines and other prevention practices are essential to reduce inequities in severe COVID-19–associated illness and death."

JAMA Netw Open: Assessment of Administration and Receipt of COVID-19 Vaccines by Race and Ethnicity in US Federally Qualified Health Centers (10 January 2022)

> "This cohort study investigates the dispensation of the COVID-19 vaccination at federally qualified health centers in the US and whether the vaccine has been distributed equitably to people of different races and ethnicities.
>
> Federally qualified health centers have provided critical access to COVID-19 vaccinations for patients from diverse racial and ethnic groups. As of July 2021, FQHCs administered 61.4% of their vaccines to patients of races and ethnicities other than White compared with 40% administered to racial and ethnic minority groups in the general US population."

Transmission, Exposure, and Testing

News in Brief

"Covid loses 90% of ability to infect within 20 minutes in air – study" (Guardian; see also: medRxiv preprint).

"Wastewater suggests Omicron is receding in US cities" (CIDRAP; see also: MMWR *Notes from the Field*).

"Why rapid COVID tests aren't more accurate and how scientists hope to improve them" (NPR).

Journal Articles

Lancet Reg Health Eur: Quarantine and testing strategies to ameliorate transmission due to travel during the COVID-19 pandemic: a modelling study (10 January 2022)

> "Background: Numerous countries have imposed strict travel restrictions during the COVID-19 pandemic, contributing to a large socioeconomic burden. The long quarantines that have been applied to contacts of cases may be excessive for travel policy.
>
> Methods: We developed an approach to evaluate imminent countrywide COVID-19 infections after 0-14-day quarantine and testing. We identified the minimum travel quarantine duration such that the infection rate within the destination country did not increase compared to a travel ban, defining this minimum quarantine as "sufficient."
>
> Findings: We present a generalised analytical framework and a specific case study of the epidemic situation on November 21, 2021, for application to 26 European countries. For most origin-destination country pairs, a three-day or shorter quarantine with RT-PCR or antigen testing on exit suffices. Adaptation to the European Union traffic-light risk stratification provided a simplified policy tool. Our analytical approach provides guidance for travel policy during all phases of pandemic diseases.
>
> Interpretation: For nearly half of origin-destination country pairs analysed, travel can be permitted in the absence of quarantine and testing. For the majority of pairs requiring controls, a short quarantine with testing could be as effective as a complete travel ban. The estimated travel quarantine durations are substantially shorter than those specified for traced contacts."

Misinformation and Health Messaging

News in Brief

"Americans are tuning out as omicron rages. Experts call for health messaging to adapt" (NPR).

"As omicron surged, so did abuse of health communicators online" (CIGI).

Journal Articles

J Health Commun: Interventions to Mitigate COVID-19 Misinformation: A Systematic Review and Meta-Analysis (09 January 2022)

> "The duration and impact of the COVID-19 pandemic depends largely on individual and societal actions which are influenced by the quality and salience of the information to which they are exposed. Unfortunately, COVID-19 misinformation has proliferated. Despite growing attempts to mitigate COVID-19 misinformation, there is still uncertainty regarding the best way to ameliorate the impact of COVID-19 misinformation. To address this gap, the current study uses a meta-analysis to evaluate the relative impact of interventions designed to mitigate COVID-19-related misinformation.
>
> We searched multiple databases and gray literature from January 2020 to September 2021. The primary outcome was COVID-19 misinformation belief. We examined study quality and meta-analysis was used to pool data with similar interventions and outcomes.
>
> 16 studies were analyzed in the meta-analysis, including data from 33378 individuals. The mean effect size of interventions to mitigate COVID-19 misinformation was positive, but not statistically significant [d = 2.018, 95% CI (-0.14, 4.18), p = .065, k = 16]. We found evidence of publication bias. Interventions were more effective in cases where participants were involved with the topic, and where text-only mitigation was used.
>
> The limited focus on non-U.S. studies and marginalized populations is concerning given the greater COVID-19 mortality burden on vulnerable communities globally. The findings of this meta-analysis describe the current state of the literature and prescribe specific recommendations to better address the proliferation of COVID-19 misinformation, providing insights helpful to mitigating pandemic outcomes."

Other Infectious Diseases and Public Health Threats

News in Brief

"Antimicrobial resistance far deadlier than thought, study finds" (CIDRAP; see also: Lancet full text).

"CIA report: No evidence linking Havana syndrome to a foreign country" (NPR).

"Bipartisan senators introduce legislation to rebuild public health workforce" (HPN).

Journal Articles

MMWR: Zika-Associated Birth Defects Reported in Pregnancies with Laboratory Evidence of Confirmed or Possible Zika Virus Infection — U.S. Zika Pregnancy and Infant Registry, December 1, 2015–March 31, 2018 (21 January 2022)

> "What is already known about this topic? Zika virus infection during pregnancy can cause serious brain and eye birth defects.
>
> What is added by this report? This study describes the frequency of individual Zika-associated birth defects from the U.S. Zika Pregnancy and Infant Registry (USZPIR). Approximately 5% of infants in USZPIR had any Zika-associated brain or eye defect. Several individual brain and eye defects were more commonly reported. One third of infants with any Zika-associated birth defect had more than one defect reported.
>
> What are the implications for public health practice? Certain brain and eye defects in infants might prompt suspicion of prenatal Zika virus infection and might provide a signal to the reemergence of Zika virus, particularly in geographic regions without ongoing comprehensive Zika virus surveillance."

Clin Infect Dis: Impact of COVID-19 on HIV Preexposure Prophylaxis Prescriptions in the United States – A Time Series Analysis (18 January 2022)

> "Background: Uptake of HIV preexposure prophylaxis (PrEP) has been increasing in the United States since its FDA approval in 2012; however, the COVID-19 pandemic may have affected this trend. Our objective was to assess the impact of the COVID-19 pandemic on PrEP prescriptions in the United States.
>
> Methods: We analyzed data from a national pharmacy database from January 2017 through March 2021 to fit an interrupted time-series model that predicted PrEP prescriptions and new PrEP users had the pandemic not occurred. Observed PrEP prescriptions and new users were compared with those predicted by the model. Main outcomes were weekly numbers of PrEP prescriptions and new PrEP users based on a previously developed algorithm. The

impact of the COVID-19 pandemic was quantified by computing rate ratios and percent decreases between the observed and predicted counts during 3/15/2020 - 3/31/2021.

Results: In the absence of the pandemic, our model predicted that there would have been 1,058,162 PrEP prescriptions during 3/15/2020 - 3/31/2021. We observed 825,239 PrEP prescriptions, a 22.0% reduction (95% CI: 19.1%-24.8%) after the emergency declaration. The model predicted 167,720 new PrEP users during the same period; we observed 125,793 new PrEP users, a 25.0% reduction (95% CI: 20.9%-28.9%). The COVID-19 impact was greater among younger persons and those with commercial insurance. The impact of the pandemic varied markedly across states.

Conclusion: The COVID-19 pandemic disrupted an increasing trend in PrEP prescriptions in the United States, highlighting the need for innovative interventions to maintain access to HIV prevention services during similar emergencies."

Statistics

	Total Cases	*Total Deaths*
Global	351,985,355	5,598,284
United States	70,700,678	866,540

JHU CSSE as of 1000 EDT 24 January 2022

Virginia	Total cases (state)	Chesapeake	Hampton	Newport News	Norfolk	Portsmouth	Suffolk	Virginia Beach
Cases	NA	NA	NA	NA	NA	NA	NA	NA
Hospitalizations	NA	NA	NA	NA	NA	NA	NA	NA
Deaths	NA	NA	NA	NA	NA	NA	NA	NA

VA DOH as of 1000 EDT 24 January 2022

24 January 2022: Data not available from Virginia Department of Health at time of writing. See: https://www.vdh.virginia.gov/coronavirus/see-the-numbers/covid-19-in-virginia/

References

Journal Articles

Aging: Chang Y, Wan X, Fu X, Yang Z, Lu Z, Wang Z, Fu L, Yin L, Zhang Y, Zhang Q. Severe versus common COVID-19: an early warning nomogram model. Aging (Albany NY). 2022 Jan 17;14(undefined). doi: 10.18632/aging.203832. Epub ahead of print. PMID: 35037900. Link: https://www.aging-us.com/article/203832/text

Am J Epidemiol: Wesselink AK, Hatch EE, Rothman KJ, Wang TR, Willis MD, Yland J, Crowe HM, Geller RJ, Willis SK, Perkins RB, Regan AK, Levinson J, Mikkelsen EM, Wise LA. A prospective cohort study of COVID-19 vaccination, SARS-CoV-2 infection, and fertility. Am J Epidemiol. 2022 Jan 20:kwac011. doi: 10.1093/aje/kwac011. Epub ahead of print. PMID: 35051292. Link: https://academic.oup.com/aje/advance-article/doi/10.1093/aje/kwac011/6511811

BMJ Open: Vera San Juan N, Clark SE, Camilleri M, Jeans JP, Monkhouse A, Chisnall G, Vindrola-Padros C. Training and redeployment of healthcare workers to intensive care units (ICUs) during the COVID-19 pandemic: a systematic review. BMJ Open. 2022 Jan 7;12(1):e050038. doi: 10.1136/bmjopen-2021-050038. PMID: 34996785; PMCID: PMC8753114. Link: https://bmjopen.bmj.com/content/12/1/e050038

Clin Infect Dis: Huang YA, Zhu W, Wiener J, Kourtis AP, Hall HI, Hoover KW. Impact of COVID-19 on HIV Preexposure Prophylaxis Prescriptions in the United States - A Time Series Analysis. Clin Infect Dis. 2022 Jan 18:ciac038. doi: 10.1093/cid/ciac038. Epub ahead of print. PMID: 35040928. Link: https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciac038/6510912

Clin Infect Dis: Shoji K, Tsuzuki S, Akiyama T, Matsunaga N, Asai Y, Suzuki S, Iwamoto N, Funaki T, Yamada M, Ozawa N, Yamaguchi K, Miyairi I, Ohmagari N. Clinical characteristics and outcomes of COVID-19 in pregnant women: a propensity score matched analysis of the data from the COVID-19 Registry Japan. Clin Infect Dis. 2022 Jan 17:ciac028. doi: 10.1093/cid/ciac028. Epub ahead of print. PMID: 35037051. Link: https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciac028/6509063

Clin Infect Dis: Shrestha NK, Burke PC, Nowacki AS, Terpeluk P, Gordon SM. Necessity of COVID-19 Vaccination in Persons Who Have Already Had COVID-19. Clin Infect Dis. 2022 Jan 13:ciac022. doi: 10.1093/cid/ciac022. Epub ahead of print. PMID: 35028662. Link: https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciac022/6507165

CMAJ: Ali K, Azher T, Baqi M, Binnie A, Borgia S, Carrier FM, et al; Canadian Treatments for COVID-19 (CATCO); Association of Medical Microbiology and Infectious Disease Canada (AMMI) Clinical Research Network and the Canadian Critical Care Trials Group. Remdesivir for the treatment of patients in hospital with COVID-19 in Canada: a randomized controlled trial. CMAJ.

2022 Jan 19:cmaj.211698. doi: 10.1503/cmaj.211698. Epub ahead of print. PMID: 35045989. Link: https://www.cmaj.ca/content/early/2022/01/19/cmaj.211698

Int J Infect Dis: Tardif JC, Cossette M, Guertin MC, Bouabdallaoui N, Dubé MP, Boivin G; Colcorona study group. Predictive risk factors for hospitalization and response to colchicine in patients with COVID-19. Int J Infect Dis. 2022 Jan 14:S1201-9712(22)00021-2. doi: 10.1016/j.ijid.2022.01.020. Epub ahead of print. PMID: 35038601; PMCID: PMC8758567. Link: https://www.sciencedirect.com/science/article/pii/S1201971222000212

J Infect Dis: Guan M, Johannesen E, Tang CY, Hsu AL, Barnes CL, Burnam M, McElroy JA, Wan XF. Intrauterine fetal demise in the third trimester of pregnancy associated with mild infection with the SARS-CoV-2 Delta variant without protection from vaccination. J Infect Dis. 2022 Jan 13:jiac007. doi: 10.1093/infdis/jiac007. Epub ahead of print. PMID: 35024853. Link: https://academic.oup.com/jid/advance-article/doi/10.1093/infdis/jiac007/6506263

J Infect Dis: Shook LL, Brigida S, Regan J, Flynn JP, Mohammadi A, Etemad B, Siegel MR, Clapp MA, Li JZ, Roberts DJ, Edlow AG. SARS-CoV-2 placentitis associated with B.1.617.2 (Delta) variant and fetal distress or demise. J Infect Dis. 2022 Jan 13:jiac008. doi: 10.1093/infdis/jiac008. Epub ahead of print. PMID: 35024844. Link: https://academic.oup.com/jid/advance-article/doi/10.1093/infdis/jiac008/6506261

J Health Commun: Janmohamed K, Walter N, Nyhan K, Khoshnood K, Tucker JD, Sangngam N, Altice FL, Ding Q, Wong A, Schwitzky ZM, Bauch CT, De Choudhury M, Papakyriakopoulos O, Kumar N. Interventions to Mitigate COVID-19 Misinformation: A Systematic Review and Meta-Analysis. J Health Commun. 2022 Jan 9:1-12. doi: 10.1080/10810730.2021.2021460. Epub ahead of print. PMID: 35001841. Link: https://www.tandfonline.com/doi/abs/10.1080/10810730.2021.2021460

JAMA: Gandhi RT, Malani PN, Del Rio C. COVID-19 Therapeutics for Nonhospitalized Patients. JAMA. 2022 Jan 14. doi: 10.1001/jama.2022.0335. Epub ahead of print. PMID: 35029659. Link: https://jamanetwork.com/journals/jama/fullarticle/2788254

JAMA: O'Brien MP, Forleo-Neto E, Sarkar N, Isa F, Hou P, Chan KC, Musser BJ, Bar KJ, Barnabas RV, Barouch DH, Cohen MS, Hurt CB, Burwen DR, Marovich MA, Brown ER, Heirman I, Davis JD, Turner KC, Ramesh D, Mahmood A, Hooper AT, Hamilton JD, Kim Y, Purcell LA, Baum A, Kyratsous CA, Krainson J, Perez-Perez R, Mohseni R, Kowal B, DiCioccio AT, Geba GP, Stahl N, Lipsich L, Braunstein N, Herman G, Yancopoulos GD, Weinreich DM; COVID-19 Phase 3 Prevention Trial Team. Effect of Subcutaneous Casirivimab and Imdevimab Antibody Combination vs Placebo on Development of Symptomatic COVID-19 in Early Asymptomatic SARS-CoV-2 Infection: A Randomized Clinical Trial. JAMA. 2022 Jan 14. doi:

10.1001/jama.2021.24939. Epub ahead of print. PMID: 35029629. Link: https://jamanetwork.com/journals/jama/fullarticle/2788256

JAMA: Wang L, Davis PB, Kaelber DC, Volkow ND, Xu R. Comparison of mRNA-1273 and BNT162b2 Vaccines on Breakthrough SARS-CoV-2 Infections, Hospitalizations, and Death During the Delta-Predominant Period. JAMA. 2022 Jan 20. doi: 10.1001/jama.2022.0210. Epub ahead of print. PMID: 35050314. Link: https://jamanetwork.com/journals/jama/fullarticle/2788408

JAMA Netw Open: Cole MB, Raifman JR, Assoumou SA, Kim JH. Assessment of Administration and Receipt of COVID-19 Vaccines by Race and Ethnicity in US Federally Qualified Health Centers. JAMA Netw Open. 2022 Jan 4;5(1):e2142698. doi: 10.1001/jamanetworkopen.2021.42698. PMID: 35006248. Link: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2787771

JAMA Netw Open: Haas JW, Bender FL, Ballou S, Kelley JM, Wilhelm M, Miller FG, Rief W, Kaptchuk TJ. Frequency of Adverse Events in the Placebo Arms of COVID-19 Vaccine Trials: A Systematic Review and Meta-analysis. JAMA Netw Open. 2022 Jan 4;5(1):e2143955. doi: 10.1001/jamanetworkopen.2021.43955. PMID: 35040967. Link: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2788172

Lancet Digit Health: Piekos SN, Roper RT, Hwang YM, Sorensen T, Price ND, Hood L, Hadlock JJ. The effect of maternal SARS-CoV-2 infection timing on birth outcomes: a retrospective multicentre cohort study. Lancet Digit Health. 2022 Jan 13:S2589-7500(21)00250-8. doi: 10.1016/S2589-7500(21)00250-8. Epub ahead of print. PMID: 35034863; PMCID: PMC8758153. Link: https://www.thelancet.com/journals/landig/article/PIIS2589-7500(21)00250-8/fulltext

Lancet Reg Health Eur: Wells CR, Pandey A, Fitzpatrick MC, Crystal WS, Singer BH, Moghadas SM, Galvani AP, Townsend JP. Quarantine and testing strategies to ameliorate transmission due to travel during the COVID-19 pandemic: a modelling study. Lancet Reg Health Eur. 2022 Jan 10:100304. doi: 10.1016/j.lanepe.2021.100304. Epub ahead of print. PMID: 35036981; PMCID: PMC8743228. Link: https://www.sciencedirect.com/science/article/pii/S2666776221002908

Mil Med: Scheiber CJ, Simmons LM, Neading RD, Becker CF, Scarborough TR, Lenn DG, Moreno P, Brown DS, Griffiths DM, Pearson JA, Hamm AR, Tucker AA, Monson MJE. Combating the Current Pandemic and Preparing for the Next: Lessons Learned From the COVID-19 Pandemic From the Perspective of Deployed Special Operations Forces. Mil Med. 2022 Jan 11:usab544. doi: 10.1093/milmed/usab544. Epub ahead of print. PMID: 35021221. Link: https://academic.oup.com/milmed/advance-article/doi/10.1093/milmed/usab544/6503551MMWR: Barrett CE, Koyama AK, Alvarez P, et al. Risk for Newly Diagnosed Diabetes >30 Days After SARS-CoV-2 Infection Among Persons Aged <18 Years — United States, March 1, 2020–June 28, 2021. MMWR Morb Mortal Wkly Rep 2022;71:59–65. DOI: http://dx.doi.org/10.15585/mmwr.mm7102e2external icon Link: https://www.cdc.gov/mmwr/volumes/71/wr/mm7102e2.htm

MMWR: Johnson AG, Amin AB, Ali AR, et al. COVID-19 Incidence and Death Rates Among Unvaccinated and Fully Vaccinated Adults with and Without Booster Doses During Periods of Delta and Omicron Variant Emergence — 25 U.S. Jurisdictions, April 4–December 25, 2021. MMWR Morb Mortal Wkly Rep. ePub: 21 January 2022. DOI: http://dx.doi.org/10.15585/mmwr.mm7104e2 Link: https://www.cdc.gov/mmwr/volumes/71/wr/mm7104e2.htm

MMWR: León TM, Dorabawila V, Nelson L, et al. COVID-19 Cases and Hospitalizations by COVID-19 Vaccination Status and Previous COVID-19 Diagnosis — California and New York, May–November 2021. MMWR Morb Mortal Wkly Rep. ePub: 19 January 2022. DOI: http://dx.doi.org/10.15585/mmwr.mm7104e1 Link: https://www.cdc.gov/mmwr/volumes/71/wr/mm7104e1.htm

MMWR: Oliver SE, Wallace M, See I, et al. Use of the Janssen (Johnson & Johnson) COVID-19 Vaccine: Updated Interim Recommendations from the Advisory Committee on Immunization Practices — United States, December 2021. MMWR Morb Mortal Wkly Rep 2022;71:90–95. DOI: http://dx.doi.org/10.15585/mmwr.mm7103a4 Link: https://www.cdc.gov/mmwr/volumes/71/wr/mm7103a4.htm

MMWR: Roth NM, Reynolds MR, Lewis EL, et al. Zika-Associated Birth Defects Reported in Pregnancies with Laboratory Evidence of Confirmed or Possible Zika Virus Infection — U.S. Zika Pregnancy and Infant Registry, December 1, 2015–March 31, 2018. MMWR Morb Mortal Wkly Rep 2022;71:73–79. DOI: http://dx.doi.org/10.15585/mmwr.mm7103a1 Link: https://www.cdc.gov/mmwr/volumes/71/wr/mm7103a1.htm

MMWR: Thompson MG, Natarajan K, Irving SA, et al. Effectiveness of a Third Dose of mRNA Vaccines Against COVID-19–Associated Emergency Department and Urgent Care Encounters and Hospitalizations Among Adults During Periods of Delta and Omicron Variant Predominance — VISION Network, 10 States, August 2021–January 2022. MMWR Morb Mortal Wkly Rep. ePub: 21 January 2022. DOI: http://dx.doi.org/10.15585/mmwr.mm7104e3external icon Link: https://www.cdc.gov/mmwr/volumes/71/wr/mm7104e3.htm

MMWR: Wiltz JL, Feehan AK, Molinari NM, et al. Racial and Ethnic Disparities in Receipt of Medications for Treatment of COVID-19 — United States, March 2020–August 2021. MMWR Morb Mortal Wkly Rep 2022;71:96–102. DOI: http://dx.doi.org/10.15585/mmwr.mm7103e1 Link: https://www.cdc.gov/mmwr/volumes/71/wr/mm7103e1.htm

MMWR: Zambrano LD, Newhams MM, Olson SM, et al. Effectiveness of BNT162b2 (Pfizer-BioNTech) mRNA Vaccination Against Multisystem Inflammatory Syndrome in Children Among Persons Aged 12–18 Years — United States, July–December 2021. MMWR Morb Mortal Wkly Rep 2022;71:52–58. DOI: http://dx.doi.org/10.15585/mmwr.mm7102e1 Link: https://www.cdc.gov/mmwr/volumes/71/wr/mm7102e1.htm

Nat Commun: Garcia-Flores V, Romero R, Xu Y, Theis KR, Arenas-Hernandez M, Miller D, Peyvandipour A, Bhatti G, Galaz J, Gershater M, Levenson D, Pusod E, Tao L, Kracht D, Florova V, Leng Y, Motomura K, Para R, Faucett M, Hsu CD, Zhang G, Tarca AL, Pique-Regi R, Gomez-Lopez N. Maternal-fetal immune responses in pregnant women infected with SARS-CoV-2. Nat Commun. 2022 Jan 18;13(1):320. doi: 10.1038/s41467-021-27745-z. PMID: 35042863. Link: https://www.nature.com/articles/s41467-021-27745-z

Nat Genet: Shelton JF, Shastri AJ, Fletez-Brant K; 23andMe COVID-19 Team, Aslibekyan S, Auton A. The UGT2A1/UGT2A2 locus is associated with COVID-19-related loss of smell or taste. Nat Genet. 2022 Jan 17. doi: 10.1038/s41588-021-00986-w. Epub ahead of print. PMID: 35039640. Link: https://www.nature.com/articles/s41588-021-00986-w

Nat Med: Stock SJ, Carruthers J, Calvert C, Denny C, Donaghy J, Goulding A, Hopcroft LEM, Hopkins L, McLaughlin T, Pan J, Shi T, Taylor B, Agrawal U, Auyeung B, Katikireddi SV, McCowan C, Murray J, Simpson CR, Robertson C, Vasileiou E, Sheikh A, Wood R. SARS-CoV-2 infection and COVID-19 vaccination rates in pregnant women in Scotland. Nat Med. 2022 Jan 13. doi: 10.1038/s41591-021-01666-2. Epub ahead of print. PMID: 35027756. Link: https://www.nature.com/articles/s41591-021-01666-2

NEJM: Andrews N, Tessier E, Stowe J, Gower C, Kirsebom F, Simmons R, Gallagher E, Thelwall S, Groves N, Dabrera G, Myers R, Campbell CNJ, Amirthalingam G, Edmunds M, Zambon M, Brown K, Hopkins S, Chand M, Ladhani SN, Ramsay M, Lopez Bernal J. Duration of Protection against Mild and Severe Disease by Covid-19 Vaccines. N Engl J Med. 2022 Jan 12. doi: 10.1056/NEJMoa2115481. Epub ahead of print. PMID: 35021002. Link: https://www.nejm.org/doi/full/10.1056/NEJMoa2115481

NEJM: Lin DY, Gu Y, Wheeler B, Young H, Holloway S, Sunny SK, Moore Z, Zeng D. Effectiveness of Covid-19 Vaccines over a 9-Month Period in North Carolina. N Engl J Med. 2022 Jan 12. doi: 10.1056/NEJMoa2117128. Epub ahead of print. PMID: 35020982. Link: https://www.nejm.org/doi/full/10.1056/NEJMoa2117128

Obstet Gynecol: Edelman A, Boniface ER, Benhar E, Han L, Matteson KA, Favaro C, Pearson JT, Darney BG. Association Between Menstrual Cycle Length and Coronavirus Disease 2019 (COVID-19) Vaccination: A U.S. Cohort. Obstet Gynecol. 2022 Jan 5. doi: 10.1097/AOG.0000000000004695. Epub ahead of print. PMID: 34991109. Link: https://journals.lww.com/greenjournal/Fulltext/9900/Association_Between_Menstrual_Cycle_Length_and.357.aspx

Pediatr Res: Krogstad P, Contreras D, Ng H, Tobin N, Chambers CD, Bertrand K, Bode L, Aldrovandi GM. No infectious SARS-CoV-2 in breast milk from a cohort of 110 lactating women. Pediatr Res. 2022 Jan 19. doi: 10.1038/s41390-021-01902-y. Epub ahead of print. PMID: 35042956. Link: https://www.nature.com/articles/s41390-021-01902-y#Sec1

PLoS Comput Biol: Lasso G, Khan S, Allen SA, Mariano M, Florez C, Orner EP, Quiroz JA, Quevedo G, Massimi A, Hegde A, Wirchnianski AS, Bortz RH 3rd, Malonis RJ, Georgiev GI, Tong K, Herrera NG, Morano NC, Garforth SJ, Malaviya A, Khokhar A, Laudermilch E, Dieterle ME, Fels JM, Haslwanter D, Jangra RK, Barnhill J, Almo SC, Chandran K, Lai JR, Kelly L, Daily JP, Vergnolle O. Longitudinally monitored immune biomarkers predict the timing of COVID-19 outcomes. PLoS Comput Biol. 2022 Jan 18;18(1):e1009778. doi: 10.1371/journal.pcbi.1009778. Epub ahead of print. PMID: 35041647. Link: https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1009778

Science: Muik A, Lui BG, Wallisch AK, Bacher M, Mühl J, Reinholz J, Ozhelvaci O, Beckmann N, Güimil Garcia RC, Poran A, Shpyro S, Finlayson A, Cai H, Yang Q, Swanson KA, Türeci Ö, Şahin U. Neutralization of SARS-CoV-2 Omicron by BNT162b2 mRNA vaccine-elicited human sera. Science. 2022 Jan 18:eabn7591. doi: 10.1126/science.abn7591. Epub ahead of print. PMID: 35040667. Link: https://www.science.org/doi/10.1126/science.abn7591

Science: Spudich S, Nath A. Nervous system consequences of COVID-19. Science. 2022 Jan 21;375(6578):267-269. doi: 10.1126/science.abm2052. Epub 2022 Jan 20. PMID: 35050660. Link: https://www.science.org/doi/10.1126/science.abm2052

Sci Rep: Tsiotas D, Tselios V. Understanding the uneven spread of COVID-19 in the context of the global interconnected economy. Sci Rep. 2022 Jan 13;12(1):666. doi: 10.1038/s41598-021-04717-3. PMID: 35027646; PMCID: PMC8758726. Link: https://www.nature.com/articles/s41598-021-04717-3

News in Brief

AP: Associated Press. Police: Man tried to kill 2 North Carolina hospital workers (20 January 2022). Link: https://apnews.com/article/health-north-carolina-wilmington-8c3606f4c01186bc73388932f8bc12f8

Atlantic: The Atlantic. Derek Thompson. Why More Americans Are Saying They're 'Vaxxed and Done' (10 January 2022). Link: https://www.theatlantic.com/ideas/archive/2022/01/covid-omicron-vaccination-rashomon/621199/

Atlantic: The Atlantic. Katherine J. Wu. The Worst of the Omicron Wave Could Still Be Coming (14 January 2022). Link: https://www.theatlantic.com/science/archive/2022/01/omicron-peak-covid-what-happens-next/621257/

Atlantic: The Atlantic. Ed Yong. It's a Terrible Idea to Deny Medical Care to Unvaccinated People (20 January 2022). Link: https://www.theatlantic.com/health/archive/2022/01/unvaccinated-medical-care-hospitals-omicron/621299/

Atlantic: The Atlantic. Sarah Zhang. Omicron Is Forcing Us to Rethink Mild COVID (10 January 2022). Link: https://www.theatlantic.com/health/archive/2022/01/omicron-mild-covid-pandemic-reset/621207/

BuzzFeed: BuzzFeed News. Dan Vergano. What Happens After Omicron? Four Key Questions About Where The Pandemic Goes Next (21 January 2022). Link: https://www.buzzfeednews.com/article/danvergano/omicron-future-variants

CIDRAP: Center for Infectious Disease Research and Policy. Chris Dall. Antimicrobial resistance far deadlier than thought, study finds" (21 January 2022). Link: https://www.cidrap.umn.edu/news-perspective/2022/01/antimicrobial-resistance-far-deadlier-thought-study-finds

CIDRAP: Center for Infectious Disease Research and Policy. Stephanie Soucheray. Wastewater suggests Omicron is receding in US cities (20 January 2022). Link: https://www.cidrap.umn.edu/news-perspective/2022/01/wastewater-suggests-omicron-receding-us-cities

CIDRAP: Center for Infectious Disease Research and Policy. Mary Van Beusekom. Report outlines 8 steps for current, future pandemics (18 January 2022). Link: https://www.cidrap.umn.edu/news-perspective/2022/01/report-outlines-8-steps-current-future-pandemics

CIGI: Centre for International Governance Innovation. Heidi Tworek. As Omicron Surged, So Did Abuse of Health Communicators Online (12 January 2022). Link: https://www.cigionline.org/articles/as-omicron-surged-so-did-abuse-of-health-communicators-online/

FDA: US Food & Drug Administration. FDA Takes Actions to Expand Use of Treatment for Outpatients with Mild-to-Moderate COVID-19 (21 January 2022). Link: https://www.fda.gov/news-events/press-announcements/fda-takes-actions-expand-use-treatment-outpatients-mild-moderate-covid-19

Guardian: The Guardian. Linda Geddes. Covid loses 90% of ability to infect within 20 minutes in air – study (11 January 2022). Link: https://www.theguardian.com/world/2022/jan/11/covid-loses-90-of-ability-to-infect-within-five-minutes-in-air-study

HBR: Harvard Business Review. Jessica Dudley, Sarah McLaughlin, and Thomas H. Lee. Why So Many Women Physicians Are Quitting (19 January 2022). Link: https://hbr.org/2022/01/why-so-many-women-physicians-are-quitting

HPN: Homeland Preparedness News. Liz Carey. Bipartisan senators introduce legislation to rebuild public health workforce (19 January 2022). Link: https://homelandprepnews.com/stories/75589-bipartisan-senators-introduce-legislation-to-rebuild-public-health-workforce/

Nature: Nature. Elie Dolgin. Omicron thwarts some of the world's most-used COVID vaccines (13 January 2022). Link: https://www.nature.com/articles/d41586-022-00079-6

Nature: Nature. Shannon Hall. COVID vaccines safely protect pregnant people: the data are in (12 January 2022). Link: https://www.nature.com/articles/d41586-022-00031-8

Nature: Nature. Emily Sohn. How the COVID-19 pandemic might age us (19 January 2022). Link: https://www.nature.com/articles/d41586-022-00071-0

Nature: Nature. Melinda Wenner Moyer. The COVID generation: how is the pandemic affecting kids' brains? (12 January 2022). Link: https://www.nature.com/articles/d41586-022-00027-4

NPR: National Public Radio. Jonathan Franklin. Doctors and patients are facing tough choices because of the national blood crisis (13 January 2022). Link: https://www.npr.org/2022/01/13/1072879005/hospitals-in-urgent-need-blood-donations-blood-crisis

NPR: National Public Radio. Maria Godoy. Why rapid COVID tests aren't more accurate and how scientists hope to improve them (23 January 2022). Link: https://www.npr.org/sections/health-shots/2022/01/23/1074978193/rapid-covid-tests-omicron

NPR: National Public Radio. Greg Myre. CIA report: No evidence linking Havana syndrome to a foreign country (20 January 2022). Link: https://www.npr.org/2022/01/20/1074338995/cia-report-no-evidence-linking-havana-syndrome-cases-to-a-foreign-country

NPR: National Public Radio. Yuki Noguchi. Americans are tuning out as omicron rages. Experts call for health messaging to adapt (12 January 2022). Link: https://www.npr.org/sections/health-shots/2022/01/12/1071866047/americans-are-tuning-out-as-omicron-rages-experts-call-for-health-messaging-to-a

Reuters: Reuters. Francesco Guarascio. Dozens of firms to make cheap version of Merck COVID pill for poorer nations (20 January 2022). Link: https://www.reuters.com/business/healthcare-pharmaceuticals/merck-covid-pill-molnupiravir-be-produced-by-27-drugmakers-2022-01-20/

STAT: STATnews. Eric Boodman and Isabella Cueto. A cascade of Omicron-driven shortages puts U.S. hospitals in a bind (13 January 2022). Link: https://www.statnews.com/2022/01/13/cascade-omicron-driven-shortages-hospitals/

STAT: STATnews. Helen Branswell. After Omicron, we could use a break. We may just get it (19 January 2022). Link: https://www.statnews.com/2022/01/19/after-omicron-we-could-use-a-break-we-may-just-get-it/

STAT: STATnews. Theresa Gaffney. Unvaccinated pregnant people are at higher risk for Covid complications and newborn deaths (13 January 2022). Link:

https://www.statnews.com/2022/01/13/unvaccinated-pregnant-people-higher-risk-covid-complications-newborn-deaths/

Vox: Vox. Casey Gueren. How to spot the signs of long Covid — and what to do next (21 January 2022). Link: https://www.vox.com/22893535/long-covid-symptoms-treatment

WP: Washington Post. Timothy Bella. Florida health official placed on leave after encouraging employees to get vaccinated (19 January 2022). Link: https://www.washingtonpost.com/health/2022/01/19/florida-raul-pino-vaccinated-leave-desantis/

WP: Washington Post. Anthony Faiola. The new kind of vaccine inequality (24 January 2022). Link: https://www.washingtonpost.com/world/2022/01/24/vaccine-distribution-logistics-inequality-access/

WP: Washington Post. Dan Keating, Madison Dong, and Youjin Shin. How fast the omicron variant is spreading around the world (updated 21 January 2021). Link: https://www.washingtonpost.com/health/interactive/2021/tracker-omicron-spread/

WP: Washington Post. Brittany Shammas and Hannah Knowles. Stressed hospitals are asking workers with covid to return — even if they may be infectious (23 January 2022). Link: https://www.washingtonpost.com/health/2022/01/23/hospital-workers-covid-isolation-cdc/

Statistics

JHU CSSE: Johns Hopkins Center for Systems Science and Engineering. Coronavirus COVID-19 Global Cases. Link: https://coronavirus.jhu.edu/map.html

VA DOH: Virginia Department of Health. COVID-19 in Virginia. Link: https://www.vdh.virginia.gov/coronavirus/see-the-numbers/covid-19-in-virginia/